

# MONTHLY WEATHER REVIEW,

## OCTOBER, 1875.

WAR DEPARTMENT,

Office of the Chief Signal Officer,

DIVISION OF

TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

### INTRODUCTION.

The current REVIEW is made up from meteorological returns from the following sources: 94 U. S. Signal Service Stations; 49 Surgeons, U. S. A.; 1 Naval Hospital; 13 Canadian Meteorological Service and 271 Voluntary Observers, together with material obtained from marine log-books, shipping news and other press-reports. The chief features of the meteorology of October are—

First. The low mean temperature of the month, which, as will be seen under the appropriate heading, has been universally below the normal October temperature, except on the Pacific coast. Owing to this low temperature unusually early and destructive frosts occurred in most of the Southern States, and early and heavy snows in the northern and lake districts.

Second. The number and severity of general and local storms is also another marked characteristic. The local storms have been in many cases destructive to property. The frequency and force of the general storms rendered necessary the largest number of Cautionary Signals ever displayed in any one month by the Signal Service.

### ATMOSPHERIC PRESSURE.

The region over which the barometer has stood highest during the month, will be seen from the isobaric lines (in black) on Chart No. II, to be the Gulf States and Tennessee. The area over which the pressure has been lowest, embraces Lakes Superior and Huron and the country eastward to the province of Quebec. The highest mean pressures for October, reported from stations, are 30.15 inches at Shreveport, La., and 30.19 at Vicksburg. The lowest mean pressure is 29.84 at Alpena on Lake Huron. This geographical distribution of pressure is normal for the month of October.

(1.) *Areas of High Barometer.*—As usual, the high pressure areas, which have traversed the territory of the United States, have entered the field of observation from the Northwestern and Western sections, and have advanced quite rapidly until reaching the Gulf or Atlantic States, where their progression has been comparatively slow. These areas of high barometer have been attended, by fresh or high northwest winds and by low temperatures, producing frequent and severe frosts, and, in the latter part of the month, frequent snows in the northern and lake sections of the country. They have also been preceded on the Atlantic and western Gulf coasts by high and dangerous winds.

I. The first prominent area of high pressure was reported, on the 1st of October, in Kansas and the Indian Territory, and moved slowly eastward, with increasing pressure.

On the morning of the 2d it was central in Tennessee, with a pressure of 30.32 inches, and thence developed in a direction slightly north of east, reaching the middle Atlantic coast on the evening of the 2d, with still increasing pressure, and on the morning of the 3d the barometer rose to 30.57 in Virginia, with low temperature and frequent frosts. From Virginia it moved slowly eastward off the Atlantic coast, and thence southeastwardly.

II. The second high pressure area began its eastward progress on the 4th, with less marked features. It, too, moved slowly in an easterly direction from the Northwest to the St. Lawrence valley, which, by tardy advances, but with steadily rising barometer, it reached on the 6th. The barometer rose on that day to 30.55 inches at Cape Breton and northward. Considerable quantities of rain fell on the New England coast on the 6th and 7th, which was partly due to the pressure northward of this area.

III. On the 6th a third and similar area was reported from Kansas and the mid-Mississippi valley, which also moved very slowly in a direction nearly due east, until the evening of the 7th, when it was deflected southward toward Mississippi.

IV. On the 8th still another high barometer began to move from the Northwest and to slowly overspread the Lake region, from which, on the morning of the 9th, it passed east, and became central in northern Pennsylvania, and thence moved off the Atlantic coast.

V. A fifth, but more decided area, followed this from the Northwest on the 10th, progressing southeastwardly and, by its low temperature, causing light snow in the Upper Lake region on the 11th. This area moved slowly and southwardly on the 11th, the pressure meantime increasing to 30.52 inches at St. Louis, where it was central on the morning of the 12th. From eastern Missouri it altered its course and advanced nearly due east into Pennsylvania and Maryland, disappearing on the 13th off the New Jersey and New England coasts.

VI. No other very decided area of high pressure was reported after the last mentioned until the 17th, when a small but well-defined area (pressure 30.48 inches) moved from Dakota into the central Mississippi valley, reaching the latter section on the afternoon of the 18th. From this region it progressed southeastwardly into Tennessee, and thence on the 19th and 20th, by very slow stages, into the Gulf and South Atlantic States.

VII. The last high barometer of October, followed storm-centre No. IX, on the 29th. This area developed in the Northwest, and rapidly overspread the whole country west of the Mississippi river causing dangerous local storms in the lower Mississippi valley, on the 29th and a severe "norther" on the Texas coast, October 30. Although the barometer did not rise so high as in some of the other areas of this kind, the extent of the high pressure area was very great, the area expanding on the 30th and 31st over the whole country south of the lakes, while, however, it remained central in the lower Mississippi valley.

(2.) *Areas of Low Barometer.*—The number of well-defined and decided storms of October has largely exceeded that of the previous months. Ten such decided depressions are traced on Chart No. I. It is an observable fact that the origin of none of these can be traced to the Southern or Gulf districts, but they all seem to have been generated on the eastern slopes of the Rocky Mountains, excepting alone that marked as No. V, which came from the West Indies. It is also noticeable that nearly all the month's storms passed over or within a short distance of the Lower Lake region, and thence

progressed northeastwardly. All the storm-centres also, which were formed in or approached from the Northwest and Upper Lake region, first moved southeastwardly to the Lower Lakes before they curved to the northeastward. Of these disturbances, No. VIII, No. IX and its offshoot No. X, were the most severe and dangerous that occurred.

No. I began its observed progress from the upper valley of the Missouri—lat.  $46^{\circ}$  N., long.  $102^{\circ}$  W.—on the morning of October 2d, and moved slowly southeast until reaching central Iowa, when, with accelerated motion, it pursued a direct easterly course toward Long Island, near and off which it passed on the 5th; the depression assuming a trough-shape lying east and west. It was attended by no very high winds, but by an extensive rain-belt over the Lakes, New England and the St. Lawrence valley. Its velocity varied from 15 to 20 miles per hour.

No. II is first traced on the map in northern Kansas on the afternoon of the 4th, whence, with a gentle deflection to the south, until it had crossed the Mississippi river, its track was northeasterly to Nova Scotia. The average rate of its easterly progression was about twenty miles an hour. As it neared the Lake region from the north on the 6th, it caused high winds and heavy rains on the Lower Lakes, and also rain, with high, and dangerous onshore winds along the Middle Atlantic coast. On the morning of the 7th, when it reached New England, it occasioned further heavy rains and dangerous easterly coast-winds.

No. III: This depression originated northwest of Dakota on the 8th, and is clearly discernible on the morning map of the 9th. Its path lay mostly on or beyond the northern frontiers of the United States, and its history is of no special interest.

No. IV was very similar to its predecessor in the track it pursued, except that it was deflected unusually far south into the States of New York and New Jersey. This storm-centre was, also, first seen in the Northwest, having doubtless been generated on the eastern slopes of the Rocky Mountains, near the parallel of  $50^{\circ}$  N. It approached the Middle Atlantic coast on the 15th, at the same time that No. V, another depression, but from the West Indies, was advancing northward on a line parallel with the same coast. The two depressions were very near each other on the evening of the 15th—i. e., within 225 miles. They did not, however, coalesce, but preserved their individuality, No. V taking the lead and No. IV slowly following. The latter advanced on the 16th from the Jersey coast to Maine, followed by high winds at and south of Sandy Hook. On the night of the 16th, it moved rapidly to the lower St. Lawrence valley, still followed by dangerous winds in that valley and on the New England coast. The velocity of the winds on the night of the 16th rose as high as 48 miles at Sandy Hook.

No. V, being a West Indian cyclone, moving upon the Gulf stream, is traced with difficulty, and the track marked for it on Chart No. I is, of course, only approximate. Its track and progression, up to midnight of the 14th, is roughly deduced from a few marine logs; but the afternoon reports of the 14th led to the belief, and the midnight reports of that day confirmed it, that a hurricane was advancing northward, between Bermuda and the American coast. After the 14th, its presence and direction were rendered unmistakeable, although the longitude of its track could not be accurately determined. The following shipping notes furnish various clues to its course:

- "Brig Nellie Antrim, October 13th, damaged by a northwest gale off Cape Fear.
- "Schooner Lillie Faylor, on the 12th, encountered heavy northeast weather.
- "Brig Lady Mary, October 15th, off Hatteras, had heavy gales from east-southeast, lasting 14 hours.
- "Schooner Tampico encountered heavy northeast gales, October 13th, in lat.  $30^{\circ}$  N., long.  $77^{\circ} 50'$  W.
- "Schooner J. B. Marshall had heavy gales, October 14th, in lat.  $44^{\circ} 20'$ , (?) long.  $76^{\circ} 03'$  W.
- "Schooner E. E. Rickett, from the Bahamas, encountered hurricane on 14th. (No location given.)
- "Schooner Hazel, October 13th, in straits of Florida, had heavy gale from north-northeast."



No. VI. This storm's track crossed the Lake region, the depression passing off the coast of Massachusetts on the 18th. It was of no special importance; the only noteworthy circumstance attending it was, that instead of increasing in violence as it neared the Atlantic coast, as such storms generally do, its central depression became nearly filled up in Massachusetts, and when it left the coast, going east, it was scarcely discernible.

No. VII also traversed the Lake region; it was somewhat elongated from west to east, moving slowly, attended by no very high winds, and, also, like its predecessor, filled up and obliterated just before it reached the coast of Massachusetts.

No. VIII. This storm was of a very decided and dangerous character, and had not its path, in its earlier stages, been so distinctly northerly, its progress might have been very disastrous on the Atlantic coast. It first becomes conspicuous on the map of October 25th—7:35 A. M.—in eastern Kansas, and thence its movement was to Lake Superior, which it crossed on the evening of the 25th, to pursue an east-northeast route towards Labrador. As it neared Lake Superior, it occasioned high and dangerous winds, especially on that lake, but also on Lakes Michigan and Huron, and these high winds followed it after it had curved to the eastward. Wind-velocities of from 34 to 44 miles per hour were reported from the Upper Lakes, and heavy snow and rain, occasionally attended them. As the storm-centre entered the lower St. Lawrence valley, its indraught produced high winds on the coast of Maine, the wind reaching a velocity of 54 miles an hour at Eastport, Me., on the morning of the 27th.

No. IX. This storm was of more than usual interest and importance. Its first distinct appearance was reported on the morning of the 28th, then in southwestern Kansas, whence it shaped its course in a line due northeast to the lower St. Lawrence valley. Its velocity varied from twenty to twenty-five miles per hour, although its earlier progress was slow. It followed very close upon No. VIII, and exceeded that disturbance in the extent and destructiveness of its cyclonic winds. The cloud-area attending it, on the morning of the 28th, was inconsiderable, although its existence in Kansas gave rise to cloudy weather over the Upper Lakes. On Thursday, midnight, (the 28th,) its centre had advanced to Missouri, and was then nearing the Mississippi valley. On the morning of the 29th, the barometer had fallen to 29.50, and by 4:35 p. m., to 29.38, occasioning fresh and rising easterly winds on the Lower Lakes. As it passed over southern Lake Michigan, on the night of the 29th, heavy rains fell, and the wind rose to a gale on Lakes Michigan and Erie. By the morning of the 30th, the pressure had fallen to 29.27, or less, on Lake Huron, and the winds on Lakes Michigan, Huron and Erie rose proportionately. The gale was now moving along the St. Lawrence valley, and as it passed north of Lake Erie, about noon of the 30th, an offshoot-depression of about 29.50 inches was formed and moved rapidly southeast into central Pennsylvania, and was reported at 4:35 p. m., as a little west of Philadelphia. The original storm-centre continued its course northeastwardly without deviation, and passed away on the night of the 30th towards the Gulf of St. Lawrence. Frequent and considerable snows fell on the northern and western sides of the storm as it moved forward.

No. X, which was an offshoot from No. IX, after rapidly progressing to eastern Pennsylvania, soon became a severe gale, and began to move directly up the Atlantic coast towards Maine. Its path was marked by heavy rains and high winds; and considerable snow followed its progress through New England and northeastward to Newfoundland. The local storms to which this depression gave rise, are, in part, referred to under the head of *Local Storms*.

(3.) *Local Storms*.—In Harford county, Md., on the 6th, at 3:45 p. m., a very severe

storm, preceded by roaring noise, some time before any agitation of the air, took place at the point of observation. As the storm approached a little island in the Chesapeake Bay, fifteen miles distant from where it was first seen, it is reported to have occasioned a small water-spout. On the 26th, in the same county, a severe storm, with lightning, was observed. At Fort Wayne, Ind., on the 29th, at 11 a. m., there was a local storm, with great darkness, frequent flashes of lightning and heavy thunder, followed by rain. Forty miles north of Fort Wayne, the same storm took the form of a tornado, striking Goshen and the surrounding country, demolishing a large barn and blowing out-buildings completely away. At 12 o'clock of that night, it struck Angola, Ind., blowing the engine-house of the Fort Wayne, Jackson & Saginaw Railroad to the ground, and also inflicting much other damage. A severe thunder-storm visited Boston on the morning of the 27th, having passed over Springfield, Mass., on the previous evening. The wind subsequently rose to forty-two miles an hour in Boston harbor. A gale, accompanied by heavy rain, swept over Louisville at 11 p. m., of the 29th. At Vicksburg, on the 29th, at 11:45 p. m., a violent storm of wind, rain and hail struck the city from the northwest, the wind-velocity reaching sixty miles an hour. This same storm, on the 29th, passed over Memphis at 9:30 p. m., with vivid lightning and heavy thunder and rain. It also passed over St. Louis, same day, at an earlier hour, about 4:43 p. m., with intense zig-zag lightning, followed by a wind blowing fifty miles an hour and half an inch of rain, and inflicting much damage on buildings. Its effect was felt at Shreveport, La., at 8:50 p. m., of the 29th, in a thunder-shower; and, at New Orleans, at 4:05 a. m., of the 30th, in a heavy shower of rain, with brisk winds, thunder and lightning. The local storms of the 29th and 30th, were evidently due to the cold northwest winds, descending the Mississippi valley, and following behind the storm-centre No. IX.

### TEMPERATURE OF THE AIR.

The isothermal lines on Chart No. II show the mean distribution of temperature for October. From the tabular exhibit in the lower left-hand corner of this chart, it is seen that the October temperature has with very remarkable uniformity been below the usual average, in all sections of the country east of the Rocky mountains. This early and unusual cold weather has been most marked in the South Atlantic States and the Upper Lake region, and also in the St. Lawrence valley. This low mean temperature in the South Atlantic States, may perhaps be explained by the presence of the mean high barometer in the lower Mississippi valley, which is seen on Chart No. II. In the lower Missouri valley the temperature has most nearly conformed to the normal. On the Pacific coast the temperature has been nearly three degrees higher than usual.

The following maximum temperatures were reported: Dodge City, Kansas, 88°; Indianola, Texas, 89°; Shreveport, La., 85°; Galveston, Texas, 84°; Breckenridge, Minn., 84°. Among the minimum temperatures, are—Breckenridge, 13°; Cheyenne, 11°; Pike's Peak, -5°; Colorado Springs, 18°; Yankton, 18°; North Platte, 18°; Bismarck, D. T., 21°. The greatest ranges are at Yankton, 69°; Colorado Springs, 64°; Breckenridge, 71°.

*Frosts* were observed at Huntsville, Ala., on the 12th, 30th and 31st; Jackson, Miss., 13th and 14th; Wilsonville, Ala., 13th and 14th, and killing frost on the 16th; Mt. Ida, Ark., and Forsyth, Ga., 2d, and killing frost at the latter place on the 17th; Atlanta, Ga., 13th; Gainesville, Ga., killing frost on the 3d; Fayette, Miss., 19th, 20th, 21st and 31st; Las Vegas, New Mexico, 15; Weldon, N. C., 3d, 13th and 18th; Attaway Hill, N. C., 3d, 13th and 17th; Greenville, S. C., 13th, 19th and 20th; Aiken, S. C., 13th; Spartanburg, S. C., 2d, 3d and 13th; Edgefield C. H., 13th and 17th; Powhatan Hill and Lynch-

burg, Va., first killing frost on the 13th; Purdy, Tenn., 1d; Norfolk, 17th; Jacksonville, Fla., 28th; Montgomery, 8th, 12th and 17th; Nashville, 12th and 13th; Memphis, 12th, 16th, 19th, 20th, 21st and 31st; Augusta, Ga., 17.

*Ice* was first formed at Fort Wallace, Kan., on the 15th; Fort Wayne, Mich., 12th; Decatur, Ill.; Richmond, Ind.; Rockford, Iowa, 11th; Mt. Desert, Maine; Fallston, Md.; Florida, Mass., 13th; Moorehead, Minn., 1st; Cooperstown, N. Y., 14th; Hillsboro', O., 12th; Cleveland, O., 2d; Fallsington and West Chester, Pa., 13th; Edgefield, S. C., 17th; Purdy, Tenn., and Mt. Solon, Va., 12th; Salem, W. Va., 2d; Embarrass, Wis., 1st; Powhatan Hill, Va., 13th; Newport, R. I., 13th; Keokuk, Iowa, 12th; Indianapolis, 11th and 12th; Milwaukee, 10th and 11th; Nashville, 17th; Detroit, 12th.

### PRECIPITATION.

This item is graphically shown on Chart No. III, and numerically by the table in the lower left-hand corner. It will be seen from the data thus furnished that the largest rainfall has been in the Upper Lake region and there only, except in Oregon, has any noteworthy excess of rain been reported for October. Large deficiencies have occurred in the Middle States and in the lower Missouri valley, but elsewhere there has been no very marked departure from the normal. The largest excess in Oregon does not apply to California.

Among the stations at which the smallest rainfall occurred, were—Colorado Springs, Col., Ter., 0.13 inch; North Platte, Neb., 0.14 inch; Cheyenne, W. T., 0.06 inch; Santa Fe, New Mexico, 0.06. Among the largest rainfalls reported, were at Alpena, Mich., 6.55 inches; Eastport, 7.50; Grand Haven, 6.15; Portland, Oregon, 6.73.

*Snow*—Snow fell at Albany on the 30th and 31st; Portland, Me., Barre, N. J., New York City, New Haven, Cleveland and Toledo, 31st; Wytheville, Va., on the 16th and 19th; Oswego, N. Y., 12th and 31st; Erie, Penn., 12th; Escanaba, Mich., 5th and 10th; Chicago, 15th and 18th; Logansport, Ind., 11th; Milwaukee, Wis., 26th; Detroit, Mich., 11th; Rochester, N. Y., 16th and 17th; West Chester, Penn., Philadelphia, 31st; Blooming Grove, Pa., 10th and 31st; Carlisle and Williamsport, Pa., 31st; Salem, Greenbrier county, W. Va., 11th and 16th; Woodlawn, Md., 31st and Asheville, N. C., the 16th.

*Hail* fell at Detroit on the 29th; Nashville, 30th; Keokuk on 29th; Burlington, Iowa, 29th; Springfield, Mass., on the 26th, and at Rolla, Mo., 29th. (*See Local storms.*)

*Rainy days* average as follows: For New England, 12; Middle Atlantic States, 9; Southern States, 7; Lake region, 17; Ohio valley and Northwest, 8.

*Cloudy days*, (other than those on which rain or snow fell,) New England, 5; Middle States, 2; Southern States and Ohio valley, 3; Upper Lake region, 4; Northwest, 5.

### RELATIVE HUMIDITY.

The relative humidity for the month, averages as follows in the different districts: New Jersey and New England coasts, 74 per cent.; south Atlantic and Gulf coasts, 72; interior portions of the New England, Middle and Southern States, 66; Lower Lake region, 68; Upper Lake region, 71; Ohio valley and the Northwest, 63. As usual it has been lowest at the Rocky mountain stations, amounting to 48 per cent. at Colorado Springs; 40 at Cheyenne; 33 at Denver and only 24 at Santa Fe.

### WINDS.

The prevailing winds of the month will be found indicated by the arrows, flying with the wind, on Chart No. II. Northwesterly and southwesterly winds have the pro-



dominance; the only easterly winds on this side of the Rocky mountains, are those due to the influence of the trade-wind belt on the Gulf coast and in Florida. The winds north of latitude 35° north, have nearly all had a westerly tendency.

The total movements of the air in all directions during the month, average as follows: New England and New Jersey coasts, 8,415 miles; interior of New England and Middle States, 4,460; south Atlantic and Gulf coasts, 5,490; interior of the Southern States, 3,012; Lake region, 3,120; Ohio valley and Northwest, 6,277.

### TEMPERATURE OF THE WATER.

The table of maximum and minimum temperatures of the water, at the various stations on the sea and Gulf coasts, lakes and rivers, is given on Chart No. II.

### NAVIGATION.

The table of highest and lowest water-marks of the principal Western rivers is given on Chart No. III, (lower right-hand corner.) The greatest ranges have been at Shreveport, La.; Memphis, Tenn.; Cairo, Ill.; and Vicksburg, Miss.; at which latter point the range has exceeded twelve feet. At other points the variation of level has been unimportant. At St. Louis, greatest depth was observed on the 1st; least on the 29th and 31st.

### VERIFICATION OF "PROBABILITIES" AND CAUTIONARY SIGNALS.

(1) *Probabilities*.—The usual comparison of the Probabilities, item by item, with the weather following, shows that on the average for all districts in the United States, eighty-seven and four-tenths (87.4) of the former have been verified. The percentage of omissions to predict has been 0.8. The percentage of verifications in the different districts, was as follows: For New England, 88.70; Middle States, 89.80; South Atlantic States, 89.30; East Gulf States, 89.30; West Gulf States, 83.90; Lower Lakes, 86.50; Upper Lakes, 87.70; Tennessee and the Ohio valley, 87.60; upper Mississippi valley, 84.80; and the lower Missouri valley, 82.80.

(2) *Cautionary Signals*.—The number of storm-warnings issued to the various seaport and lake stations in the United States and Canada during October, was by far the largest number issued in any one month, since the Signal Service was instituted. The total number for October, 1874, was 86; for July, August and September, 1875, was, respectively, 2, 49 and 154. The total number for the October just passed was 324. Of this number, there were ninety storm-warnings telegraphed for the benefit of Canadian seaports and shipping centres, the results of which this Office has no intelligence. There were two hundred and thirty-four Cautionary Signals ordered for and displayed at United States ports, which were justified by ensuing dangerous winds, as follows: Non-justified, 34; partly justified, 4; fully justified, 196. This gives the percentage of verifications 83.76.

### ATMOSPHERIC ELECTRICITY.

(1) *Thunder-Storms*.—These have been, in the main, noted under the head of *Local Storms*.

(2) *Auroras* were few during the month. The chief displays reported were as follows: At Cresco, Iowa, on the 7th; New Orleans, 14th; Gardiner, Me., 7th and 8th; West Waterville, 9th; Fall River, Mass., 7th; Depauville, N. Y., 2d, 10th and 24th; Hector, N. Y., 20th; Fallsington, Pa., 8th; York Sulphur Springs, Pa., 7th; Rocky Run, Wis., 2d; Eastport, Me., 5th, and Escanaba, 6th and 29th.

### OPTICAL PHENOMENA.

(1) *Solar Halos* were reported from Wisconsin on the 12th, 16th and 24th; Minnesota, 11th and 12th; Nebraska, 8th, 9th and 24th; Colorado, 14th; Iowa, 8th, 10th, 12th, 13th and 28th; Illinois, 8th and 12th; Indiana, 12th; Ohio, 6th, 7th, 8th, 9th, 12th, 14th, 23d, 24th and 25th; Pennsylvania, 13th, New York; 4th, 13th, 23d, 24th and 28th; Massachusetts, 9th and 14th; New Hampshire, 4th, 13th, 23d, 26th and 28th; Maine, 26th; Tennessee, 21st, 26th and 27th; Memphis, 2d, 9th, 22d and 28th; Alabama, 28th and 29th.

(2) *Lunar Halos* were reported from Colorado on the 11th; Kansas, 9th; Iowa, 8th; Wisconsin, 8th, 9th and 20th; Illinois, 17th, 24th and 25th; Indiana, 12; Michigan, 11th and 13th; Ohio, 12th and 23d; Pennsylvania, 12th and 13th; New York, 9th, 13th and 14th; New Jersey, 7th; Massachusetts, 9th and 14th; New Hampshire, 8th and 9th; Maryland, 13th; Virginia, 3d, 10th, 12th, 13th and 14th; North Carolina, 10th and 22d; Georgia, 14th, 15th and 22d; Tennessee, 11th, 12th to 16th, inclusive; and Alabama on the 9th.

(3) *Mirage*.—New London, 11th, 12th and 14th.

## MISCELLANEOUS PHENOMENA.

(1) *Zoological*.—*Grasshoppers* were reported at Austin, Texas, in the air, October 7th; at Nashville, 23d; Denver, on 7th, flying to the southward. *Wild Geese*, at Lower Brulé Agency, Dakota, on the 1st and 7th; Fort Gibson, Indian Territory, flying south, on 9th; Wilsonville, Ala., flying south, 11th, 15th and 17th; Southington, Conn., flying south, 30th; at Rockford, Iowa, 1st; Afton, Iowa, 4th, 8th, 10th and 23d; Independence, Iowa, 7th; Fort Madison, Iowa, 9th; Holton, Kansas, 28th; Burlingame, Kansas, 6th; Leroy, Kansas, 23d and 25th; Atchison, Kansas, 29th and 30th; Fall River, Mass., 6th; Waltham, Mass., going southwest, on 30th; Emerson, Neb., south, on 9th; Carson City, Nev., south, 23d; Contoocookville, N. H., 30th; Auburn, N. H., 26th; Depauville, N. Y., going southwest, on 12th and southeast, 13th; Kensico, N. Y., southwest, from 25th to 31st, inclusive; Farmingdale, N. Y., southwest, 6th and 31st; South Hartford, N. Y., south, 18th; Attaway Hill, N. C., south, 11th; Portland, Me., south, 23d; Franklin, Penn., south, 12th; Prospect Hill, Va., on the 19th; Embarrass, Wis., south, 4th, 5th and 8th, and Utica, Wis., south, 4th. *Wild Ducks* were observed going west at Wood's Hole, Mass., on the 6th; going south at Lower Brulé Agency, Dakota, 1st and 2d; at Fort Madison, Iowa, on the 9th, accompanied by brants; and on the 15th, south, North Palermo, N. Y. *Cranes* were reported going south at Holton, Kansas, on 4th; Baxter's Springs, Kansas, 29th and 30th. *Swallows* disappeared at Las Vegas, N. M., on 1st; and from Clarksville, Tenn., on the 30th. *Sparrows* left West Charlotte, Vt., on the 5th. *Millets* were seen flying south in enormous quantities at Baxter's Springs, Kansas, on the 22d. *Katydid*s were heard last at Leroy, Kansas, on 22d; at Wappinger's Falls, N. Y., 22d; Benettsville, Ky., 29th. *Black Birds* at Las Vegas, N. M., disappeared, 18th. *Blue Birds* last heard at Fort Madison, Iowa, 23d; last seen at Contoocookville, N. H., 23d. *Snapping Mackerel*, (blue-fish,) moving north at Cape May, on 24th; and immense schools of same high up in Delaware Bay, on 27th.

(2) *Prairie Fires* were reported at Lower Brulé Agency, D. T., to the north and east, from 22d to 28th inclusive; near Holton, Kansas, 23d; Baxter's Springs, Kansas, during the month; Ellinwood, Kansas, 14, to the north and west, and extensive fires in all directions from the 25th to 22d, and also fires 24th, 27th and 29th; at De Soto, Neb., 16th; north of Richmond, Neb., 24th; at Wytheville, Va., *Mountain Fires*, 22d, 23d, 24th and 26th.

(3) *Meteors* were reported at Newport, R. I., on 13th and 20th; Jacksonville, Fla., 5th, 9th and 23d; St. Marks, Fla., 25th; Detroit, Mich., 20th; Linden, Ill., 22d and 31sts; Abington, Ill., 15th; Rockford, Iowa, 20th; Afton, Iowa, 7th; Ellinwood, Kansas, 8th.

(4) *Polar Bands*, Newport, R. I., 21st; Norfolk, Va., 22d; Buffalo, N. Y., 19th; Iowa City, 18th and 23d; Fayette, Miss., 14th; Wytheville, Va., 7th, 8th, 10th, 17th, 22d and 24th.

*Earthquakes* were reported at Memphis and Cairo, slight shocks, 7th; at Purdy, McNary county, Tenn., 27th, 9 P. M., duration from 5 to 30 seconds.

PUBLISHED BY ORDER OF THE HON. WM. W. BELKNAP, SECRETARY OF WAR.

Albert J. Myer

Brig. Gen. (Bvt. Assg'l.) Chief Signal Officer, U. S. A.

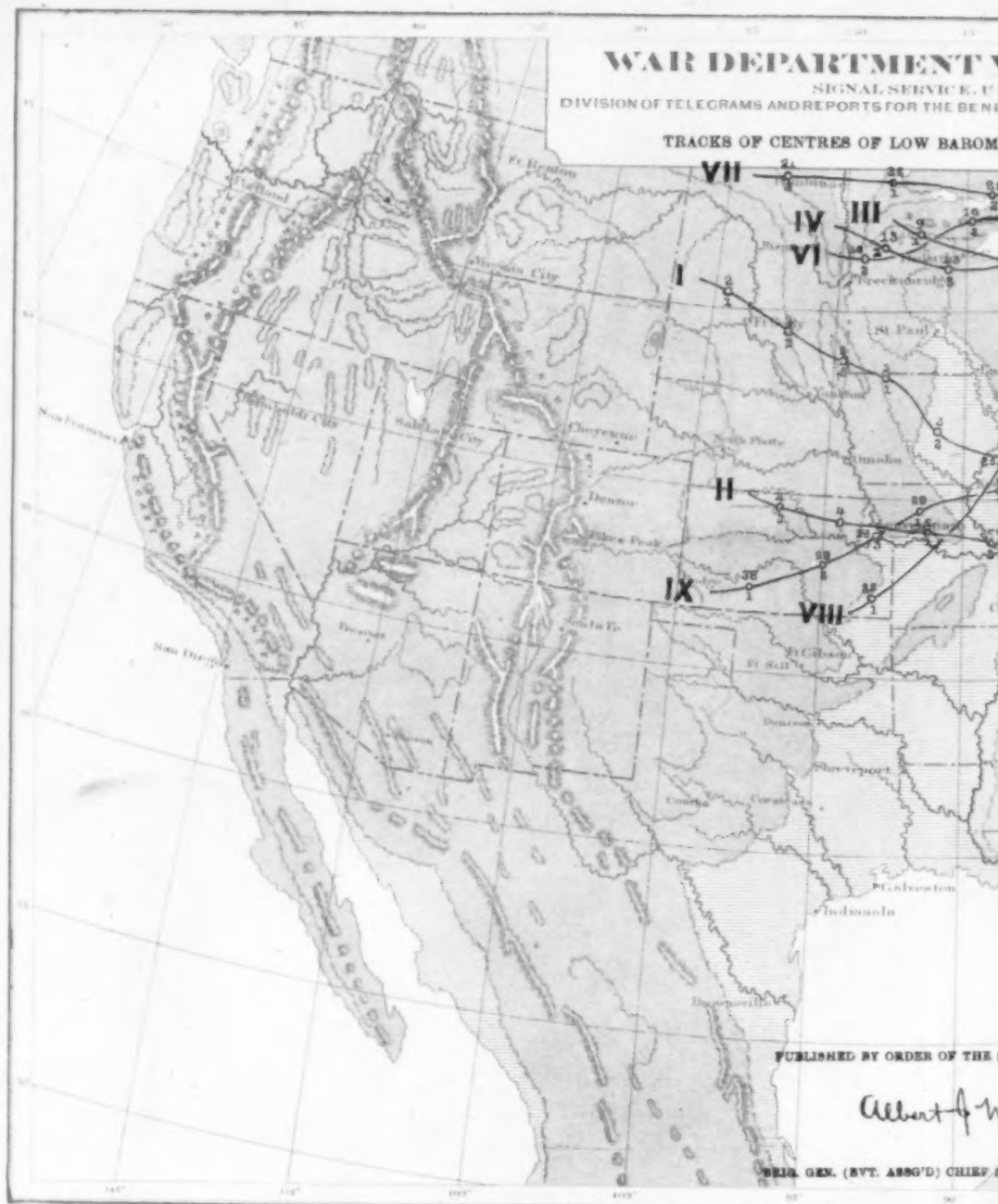
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TRACKS OF CENTRES OF LOW BAROMETER



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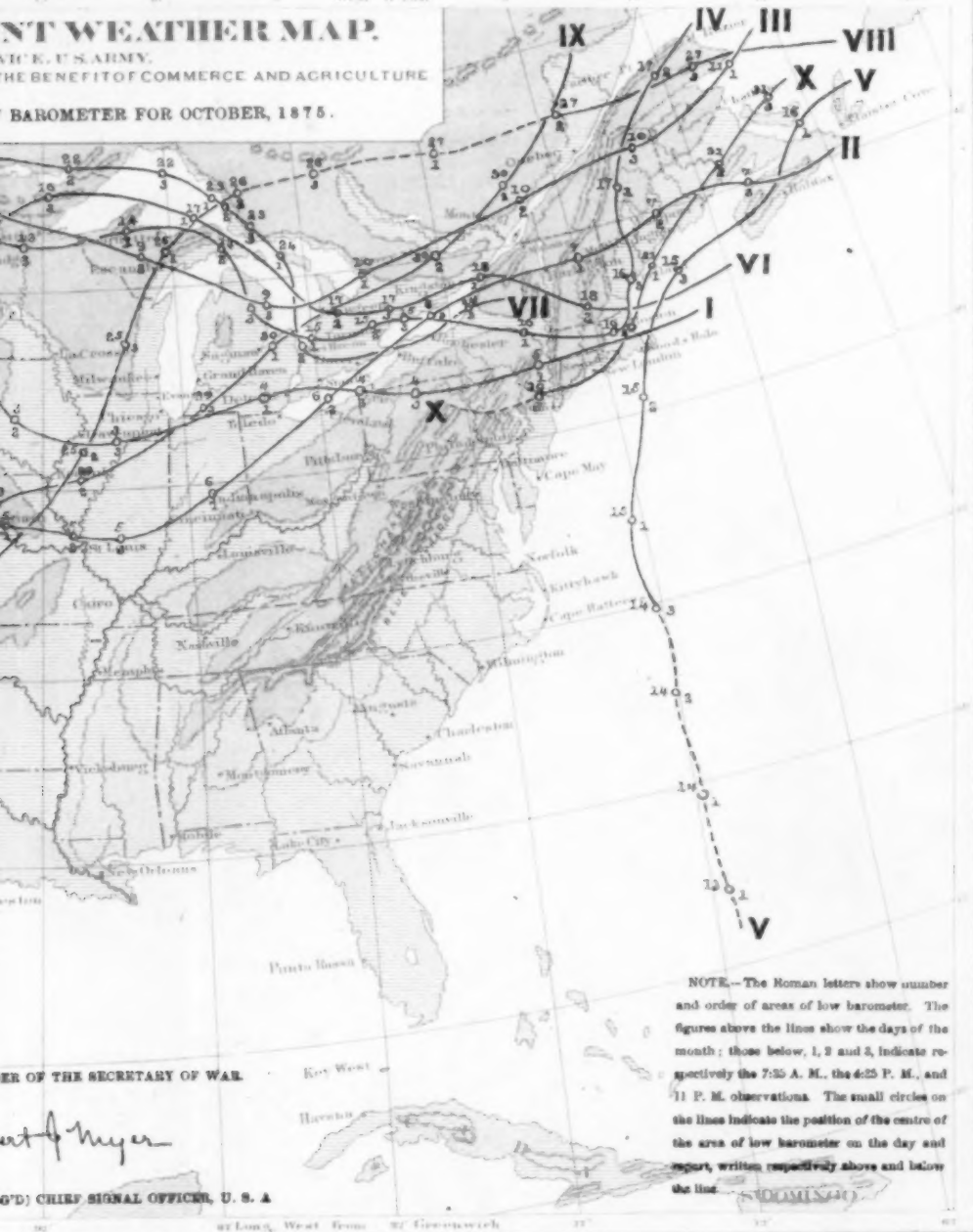
*Albert G. W.*

CHIEF, GEN. (SVC. ASSO'D) CHIEF

# NT WEATHER MAP.

VIC'E, U'S ARMY.  
THE BENEFIT OF COMMERCE AND AGRICULTURE

BAROMETER FOR OCTOBER, 1875.



ER OF THE SECRETARY OF WAR.

*Wm. H. Meyer*

G'D) CHIEF SIGNAL OFFICER, U. S. A

ST. Louis, West from 31° Greenwich



SIGNAL SERVICE  
DIVISION OF TELEGRAMS AND REPORTS FOR THE

AVERAGE MEAN TEMPERATURES FOR OCTOBER.

DISTRICTS.	Average for October.		Comparison of October, 1923, with the average for many years.
	For many years.	For 1923.	
St. Lawrence valley.....	45.3	40.7	4.6 below.
New England.....	50.3	49.2	1.0 below.
Middle Atlantic States.....	56.3	55.0	1.3 below.
South Atlantic States.....	60.7	61.0	0.3 below.
Gulf States.....	66.0	66.4	0.4 below.
Lower Lake region.....	48.6	46.9	1.7 below.
Upper Lake region.....	48.3	43.0	5.3 below.
Ohio valley and Tennessee.....	54.9	53.3	1.6 below.
Upper Mississippi valley.....	50.8	48.8	2.0 below.
Lower Missouri valley.....	51.7	51.2	0.5 below.
Minnesota.....	44.0	41.3	2.7 below.
Pacific Coast.....	59.3	62.0	2.7 above.

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BRIG. GEN. (RVT. ARMY)

AVERAGE MEAN TEMPERATURES FOR OCTOBER.

DISTRICTS.	Average for October.		Comparison of October, 1875, with the average for many years.
	For many years.	For 1875.	
St. Lawrence valley.....	45° 3	40° 7	4° 6 below.
New England.....	50° 3	42° 0	8° 3 below.
Middle Atlantic States.....	56° 3	55° 0	1° 3 below.
South Atlantic States.....	65° 7	68° 0	2° 3 below.
Gulf States.....	68° 0	68° 4	4° 4 below.
Lower Lake region.....	48° 6	46° 3	2° 3 below.
Upper Lake region.....	48° 5	43° 0	5° 5 below.
Ohio valley and Tennessee.....	54° 9	53° 3	1° 6 below.
Upper Mississippi valley.....	50° 6	48° 8	1° 8 below.
Lower Mississippi valley.....	51° 7	51° 2	5° 5 below.
Minnesota.....	54° 0	41° 5	12° 5 below.
Pacific Coast.....	59° 3	63° 0	3° 6 above.

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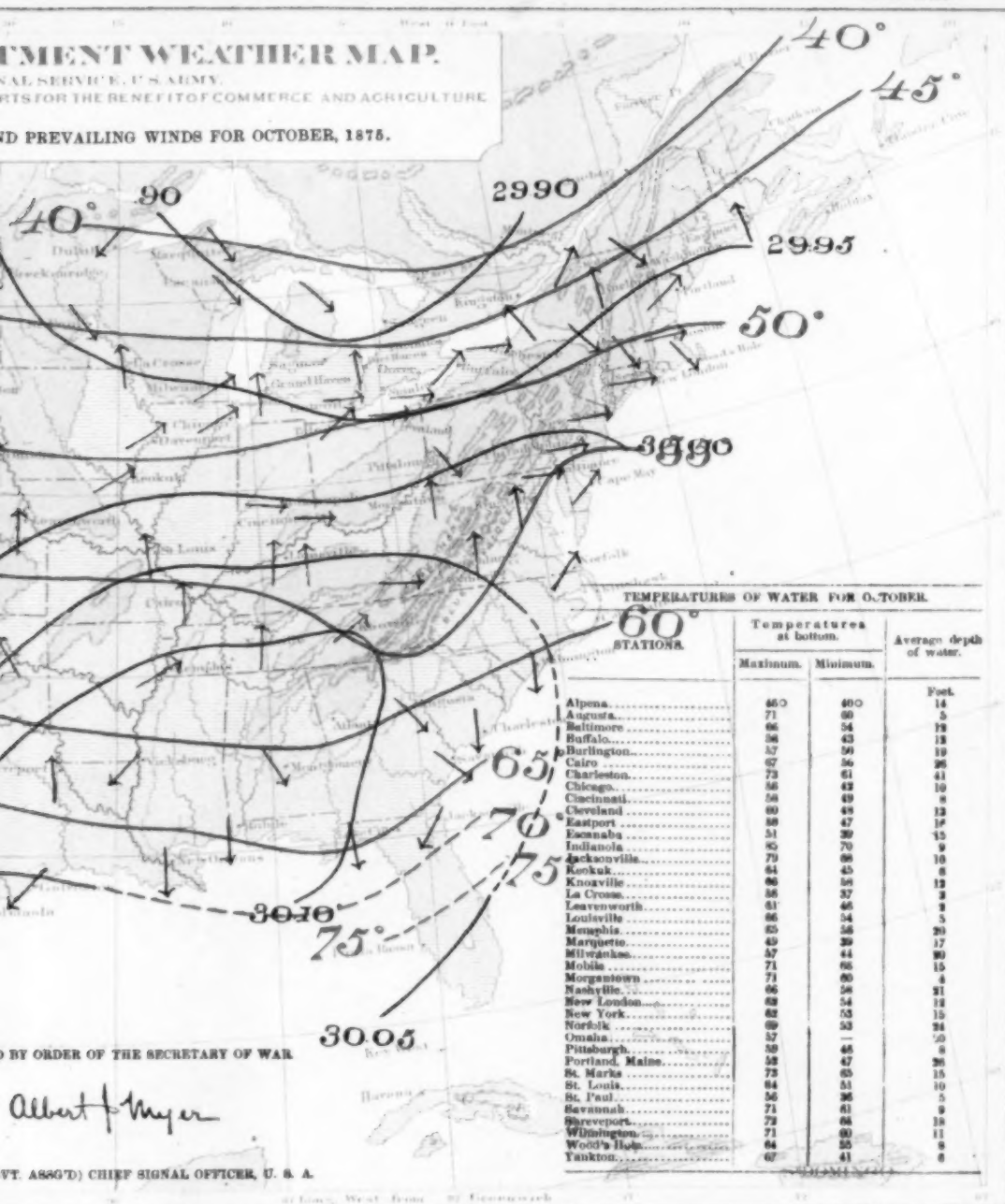
Albert

DRUG GEN. (HVT. ASSG'D)

## TMENT WEATHER MAP.

NAL SERVICE, U. S. ARMY.  
RTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE

ND PREVAILING WINDS FOR OCTOBER, 1875.



BY ORDER OF THE SECRETARY OF WAR

Albert J. Meyer

VT. ASST'D) CHIEF SIGNAL OFFICER, U. S. A.

